

WHAT IS CLAIMED IS:

1. An electrode contact section incorporated in a semiconductor device, comprising:

a first-conductivity-type semiconductor substrate;

5 a second-conductivity-type impurity layer formed in one surface of the semiconductor substrate and having a thickness of not more than $1.0\ \mu\text{m}$ from a surface of the semiconductor substrate;

10 a second-conductivity-type contact layer formed in the impurity layer and having a thickness of not more than $0.2\ \mu\text{m}$ from the surface of the semiconductor substrate, the contact layer being thinner than the impurity layer and having a higher impurity concentration than the impurity layer; and

15 a first electrode formed on the contact layer.

2. The electrode contact section according to claim 1, wherein the impurity layer is provided for carrier injection from the impurity layer to the semiconductor substrate, and the contact layer is
20 provided for reducing a contact resistance between the first electrode and the impurity layer and not for carrier injection.

3. The electrode contact section according to claim 1, further comprising a second electrode formed
25 at another surface side of the semiconductor substrate for allowing a current to flow between the first and second electrodes.

4. The electrode contact section according to claim 3, wherein the semiconductor device is an IGBT.

5. The electrode contact section according to claim 1, wherein the impurity layer is formed in the entire one surface of the semiconductor substrate.

6. The electrode contact section according to claim 1, wherein the impurity layer is formed in a portion of the one surface of the semiconductor substrate.

10 7. An electrode contact section incorporated in a semiconductor device, comprising:

a first-conductivity-type semiconductor substrate;
a second-conductivity-type impurity layer formed in one surface of the semiconductor substrate;

15 a second-conductivity-type contact layer formed in the impurity layer, being thinner than the impurity layer and having a higher impurity concentration than the impurity layer;

a first electrode formed on the contact layer; and
20 a silicide layer formed between the first electrode and the contact layer, the silicide layer having a contact-layer-side end thereof made to substantially correspond to that portion of the contact layer, at which a concentration profile of the contact layer assumes a peak value.

25 8. The electrode contact section according to claim 7, wherein the impurity layer is provided for

carrier injection from the impurity layer to the semiconductor substrate, and the contact layer is provided for reducing a contact resistance between the first electrode and the impurity layer and not for carrier injection.

9. The electrode contact section according to claim 7, further comprising a second electrode formed at another surface side of the semiconductor substrate for allowing a current to flow between the first and second electrodes.

10. The electrode contact section according to claim 9, wherein the semiconductor device is an IGBT.

11. The electrode contact section according to claim 7, wherein the impurity layer has a thickness of not more than $1.0\ \mu\text{m}$ from a surface of the semiconductor substrate.

12. The electrode contact section according to claim 7, wherein the contact layer has a thickness of not more than $0.2\ \mu\text{m}$ from a surface of the semiconductor substrate.

13. The electrode contact section according to claim 7, wherein the silicide layer has a thickness of not more than $0.2\ \mu\text{m}$ from a surface of the semiconductor substrate, and is thinner than the contact layer.

14. The electrode contact section according to claim 7, wherein the impurity layer is formed in the

entire one surface of the semiconductor substrate.

15. The electrode contact section according to claim 7, wherein the impurity layer is formed in a portion of the one surface of the semiconductor substrate.

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